Response to Office Action of 10/31/2006

Attorney Docket: NORTE-514A

## Amendments to the Claims:

- 1. (Original) An optical tag, comprising:
- a) a photo-detector responsive to an incident optical energy at a predetermined wavelength;
  - b) a controller in electrical communication with the photo-detector;
  - c) a piezoelectric translator in electrical communication with the controller;
  - d) a battery in electrical communication with the piezoelectric translator; and
  - e) a reflective tape in mechanical communication with the piezoelectric translator.
- 2. (Original) The optical tag of Claim 1, wherein the reflective tape includes a retro-reflective tape to reflect the optical energy along a path that the optical energy is incident.
- 3. (Original) The optical tag of Claim 1, wherein the optical energy is a continuous optical wave.
- 4. (Original) The optical tag of Claim 1, wherein the photo-detector includes an indium gallium arsenide PIN photodiode.
- 5. (Original) The optical tag of Claim 1, wherein the predetermined wavelength is about 1.55  $\mu m$ .
- 6. (Original) The optical tag of Claim 1, further comprising a filter disposed on the photo-detector.
- 7. (Original) The optical tag of Claim 6, wherein the filter has a narrow bandpass at the predetermined wavelength.
- 8. (Original) The optical tag of Claim 1, wherein the photo-detector is operative to generate a photocurrent upon reception of the optical energy.
- 9. (Original) The optical tag of Claim 8, wherein the photocurrent generated by the photo-detector is output to the controller.
- 10. (Original) The optical tag of Claim 9, wherein the battery is operative to supply an electric power to the piezoelectric translator when the photocurrent is input to the controller.

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11. (Original) The optical tag of Claim 1, wherein the piezoelectric translator is operative to expand and contract while being connected to the battery.

- 12. (Original) The optical tag of Claim 1, wherein the piezoelectric translator is operative to generate a stroke with a predetermined length to the retro-reflective tape while being connected to the battery.
- 13. (Original) The optical tag of Claim 12, wherein the predetermined length is about 0.75  $\mu m$ .
- 14. (Original) The optical tag of Claim 12, wherein the retro-reflective tape is operative to receive and modulate the optical energy according to the stroke generated by the piezoelectric translator.
- 15. (Original) The optical tag of Claim 14, wherein the retro-reflective tape is operative to retro-reflect the modulated optical energy.
- 16. (Original) The optical tag of Claim 1, further comprising a Fresnel lens above the retro-reflective tape.
- 17. (Original) The optical tag of Claim 16, wherein the retro-reflective tape is located at a focal point of the Fresnel lens.
- 18. (Original) The optical tag of Claim 1, further comprising an enclosure enclosing the photo-detector, the controller, the piezoelectric translator, the battery, and the retro-reflective tape therein.
  - 19. (Original) An optical tag, comprising:

a piezoelectric translator operative to generate a pulse when an optical energy at a predetermined wavelength is incident on the optical tag; and

a retro-reflective tape in contact with the piezoelectric translator, the retro-reflective tape being operative to modulate phase of the optical energy according to the pulse generated by the piezoelectric translator and retro-reflect the modulated optical energy incident thereon.

20. (Original) The optical tag of Claim 19, further comprising:

a photo-detector operative to generate a photocurrent while receiving of the optical energy; and

a controller, operative to receive the photocurrent and activate the piezoelectric translator.

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21. (Original) The optical tag of Claim 20, further comprising a battery connected to the piezoelectric translator when the controller receives the photocurrent.

- 22. (Original) The optical tag of Claim 19, further comprising a Fresnel lens for focusing the optical energy on the retro-reflective tape.
  - 23. (Original) The optical tag of Claim 19, further comprising: an amplifier operative to amplify the photocurrent; an interface to decode data contained in the photocurrent; and a data retrieval device operative to retrieve the data.
- 24. (Original) The optical tag of Claim 23, wherein the data retrieval device includes an earpiece.
- 25. (Original) The optical tag of Claim 23, wherein the data retrieval device includes a display.
- 26. (Currently Amended) An interrogating system, comprising:
  an interrogating beam source, operative to scan an interrogating beam with a
  predetermined wavelength through a field; and

an optical tag, operative to respond to the an optical signal with an identification code, wherein the optical tag comprising:

a piezoelectric translator, operative to generate a pulse for modulating the optical signal; and

a retro-reflective tape, operative to modulate the optical signal with the identification code according to the pulse and retro-reflect the modulated optical signal back to the interrogating beam source.

- 27. (Original) The interrogating system of Claim 26, wherein the interrogating beam source includes a laser beam source.
- 28. (Original) The interrogating system of Claim 26, wherein the predetermined wavelength is about  $1.55 \mu m$ .
- 29. (Original) The interrogating system of Claim 26, wherein the interrogating beam source is placed in an airborne platform.
- 30. (Original) The interrogating system of Claim 26, wherein the optical tag is mounted on a vehicle.

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31. (Original) The interrogating system of Claim 26, wherein the optical tag is held by a person.

32. (Currently amended) A method of interrogating a target from an airborne platform, comprising:

generating a <u>an</u> optical signal at a predetermined wavelength; converting the optical signal into a photocurrent; generating a pulse in response to the photocurrent; modulating the optical signal with an identification according the pulse; and retro-reflecting the modulated optical signal.

33. (Original) The method of Claim 32, further comprising: providing a photo-detector to receive the optical signal and to generate the photocurrent;

providing a piezoelectric translator activated by the photocurrent to generate the mechanical pulse; and

providing a retro-reflective tape on the piezoelectric translator to modulate and retroreflect the optical signal.

- 34. (Original) The method of Claim 33, further comprising a step of connecting the piezoelectric translator to a battery to generate the pulse.
- 35. (Original) The method of Claim 33, further comprising a step of varying the identification code of the target by changing material, thickness, and/or area of the piezoelectric translator.
- 36. (Original) The method of Claim 33, further comprising a step of varying the identification code of the target by changing material, thickness, and/or area of the retroreflective tape.
  - 37. (Original) The method of Claim 32, further comprising the steps of: decoding the photocurrent into readable data or audio format; and retrieving the data or information by a data retrieval device.